

Listing of Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application.

1-27. (Cancelled)

28. (New) A method of utilizing a triggerably releasable delivery system in the treatment of a patient, the method comprising administering to the patient a plurality of nanoparticles containing alumina and having a size of about 500 nanometers or less, wherein the nanoparticles are bonded to a functional compound and possess a zeta potential of about 20 millivolts or more, wherein the functional compound is released from the surface of the nanoparticles upon exposure to an environmental or chemical condition.

29. (New) The method of claim 28, wherein the nanoparticles include silica coated with alumina.

30. (New) The method of claim 28, wherein the nanoparticles possess a zeta potential of about 30 millivolts or more.

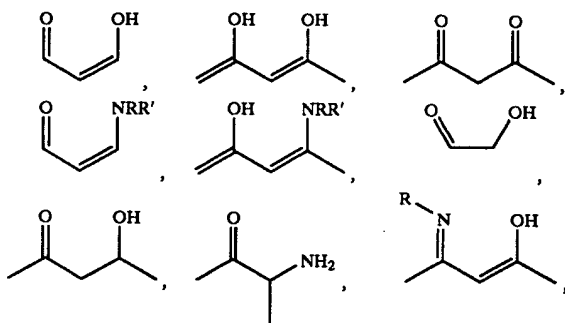
31. (New) The method of claim 28, wherein the nanoparticles possess a zeta potential of about 40 millivolts or more.

32. (New) The method of claim 28, wherein the functional compound is adsorbed onto a surface of the nanoparticles.

33. (New) The method of claim 28, wherein the functional compound is an anti-microbial agent, anti-viral agent, or a combination thereof.

34. (New) The method of claim 28, wherein the functional compound is a therapeutic agent.

35. (New) The method of claim 28, wherein the functional compound contains a moiety comprising:



or a tautomer thereof, or a functional equivalent thereof, wherein R and R' comprise independently hydrogen, an alkyl group, or an aryl group.

36. (New) The method of claim 28, wherein the nanoparticles are contained within a vehicle.

37. (New) The method of claim 36, wherein the vehicle is a liquid.

38. (New) The method of claim 36, wherein the vehicle is a gel.

39. (New) The method of claim 36, wherein the vehicle includes a pH altering material.

40. (New) The method of claim 28, wherein the nanoparticles are located on a substrate prior to administration to the patient.

41. (New) The method of claim 28, wherein the environmental or chemical condition includes a change in pH.

42. (New) The method of claim 41, wherein the change in pH involves a change from an acidic to an alkaline pH.

43. (New) The method of claim 41, wherein the change in pH involves a change from an alkaline to an acidic pH.

44. (New) The method of claim 28, wherein the nanoparticles are topically administered to the skin of the patient.

45. (New) The method of claim 28, wherein the nanoparticles are administered to a mucosal membrane of the patient.

46. (New) The method of claim 45, wherein the mucosal membrane is located in the vagina of a female.

47. (New) A method of utilizing a triggerably releasable delivery system in the treatment of a patient, the method comprising administering a vehicle to a mucosal membrane of a patient, the vehicle comprising a plurality of nanoparticles containing alumina and having a size of about 500 nanometers or less, wherein the nanoparticles are bonded to a functional compound and possess a zeta potential of about 20 millivolts or more, and wherein the functional compound is released from the surface of the nanoparticles by a change in pH.

48. (New) The method of claim 47, wherein the nanoparticles contain silica coated with alumina.

49. (New) The method of claim 47, wherein the nanoparticles possess a zeta potential of about 30 millivolts or more.

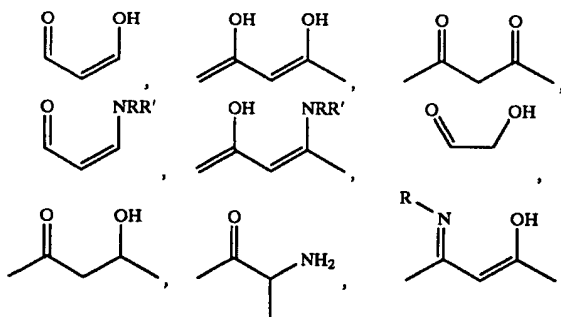
50. (New) The method of claim 47, wherein the nanoparticles possess a zeta potential of about 40 millivolts or more.

51. (New) The method of claim 47, wherein the functional compound is adsorbed onto a surface of the nanoparticles.

52. (New) The method of claim 47, wherein the functional compound is an anti-microbial agent, anti-viral agent, or a combination thereof.

53. (New) The method of claim 47, wherein the functional compound is a therapeutic agent.

54. (New) The method of claim 47, wherein the functional compound contains a moiety comprising:



or a tautomer thereof, or a functional equivalent thereof, wherein R and R' comprise independently hydrogen, an alkyl group, or an aryl group.

55. (New) The method of claim 47, wherein the vehicle is a liquid.

56. (New) The method of claim 47, wherein the vehicle is a gel.

57. (New) The method of claim 47, wherein the vehicle includes a pH altering material.

58. (New) The method of claim 47, wherein the nanoparticles are located on substrate prior to administration to the patient.

59. (New) The method of claim 47, wherein the change in pH involves a change from an acidic to an alkaline pH.

60. (New) The method of claim 47, wherein the change in pH involves a change from an alkaline to an acidic pH.

61. (New) The method of claim 47, wherein the mucosal membrane is located in the vagina of a female.